

124-58-6-6625

The Kinetic-energy-of-flow Coefficient (cont. )

The quantity  $k$  has a value of 0.1 in the case of smooth pipes, a value of 0.15 - 0.20 in the case of pipes with moderate roughness, and 0.25 - 0.3 in the case of pipes with substantial roughness.

Yu. M. Savvin

1. Fluid flow--Theory
2. Pipes--Hydrodynamic characteristics

Card 2/2

LATYSHENKOV, A.M.

Calculating velocity increase and specific consumption in the compressed cross sections of narrow channels. Nauch.dokl. vys.shkoly; energ. no.2:167-178 '59. (MIRA 13:1)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut vodosnabzheniya, kanalizatsii, gidrotekhnicheskikh sooruzheniy i inzhener-noy gidrogeologii.  
(Hydraulics)

LATYSHENKOV, A.M., kand.tekhn.nauk

Problems of steam hydraulics in artificially compressed channels.  
Trudy Gidrav.lab.VODGEO no.7:125-182 '59. (MIRA 13:8)  
(Hydraulics)

LATYSHENKOV, A.M., kand.tekhn.nauk

Studying two types of chute spillways of the Mozhaysk hydroelectric power dam. Trudy Gidrav.lab.VODGEO no.7:183-199 '59.

(MIRA 13:8)

(Mozhaysk Hydroelectric Power Station--Spillways)

LATYSHENKOV, A.M.; MUROMOV, V.S., dotsent, känd.tekhn.nauk, nauchnyy red.;  
SMIRNOVA, A.P., red.izd-va; SHERSTNEVA, N.V., tekhn.red.

[Problems in the hydraulics of artificially contracted channels]  
Voprosy gidravliki iskusstvenno szhatykh rusel. Moskva, Gos.izd-vo  
lit-ry po stroit., arkhitekt. i stroit. materialam, 1960. 214 p.  
(MIRA 14:1)

(Hydraulics)

NEDRIGA, V.P., kand.tekhn.nauk. Prinimala uchastiye SMAGINA, A.Ye., starshiy  
tekhnik. LATYSHENKOV, A.M., kand.tekhn.nauk, nauchnyy red.; SAFONOV,  
P.V., red.izd-va; TEMKINA, Ye.L., tekhn.red.

[Conjugating sections of concrete dams] Sopriagayushchie ustroistva  
betonnykh plotin. Moskva, Gos.izd-vo lit-ry po stroit., arkhitekt. i  
stroit.materialam, 1960. 278 p. (MIRA 13:10)  
(Dams)

PLEVAKO, Nikolay Alekseyevich; MAYZEL', M.M., prof., doktor tekhn.nauk,  
retsensent; LATYSHENKOV, A.M., dotsent, kand.tekhn.nauk;  
MINAYEVA, T.W., red.; KNAKHIN, M.T., tekhn.red.

[Fundamentals of hydraulics and hydraulic machinery] Osnovy  
gidravliki i gidravlicheskie mashiny. Moskva, Izd-vo nauchno-tekhn.  
lit-ry RSFSR, 1960. 427 p. (MIRA 14:1)  
(Hydraulics) (Hydraulic machinery)

LATYSHENKOV, A.M., kand. tekhn. nauk; YAROTSKIY, V.A., inzh.

Laboratory hydraulic studies of a hydraulic complex. Trudy  
Gidrav. lab. VODGEO no.10:237-246 '63. (MIRA 17:8)

LATYSHENKOV, A.M., kand. tekhn. nauk

Results of full-scale hydraulic studies of water supply  
channels. Trudy Gidrav. lab. VODGEC no.10:247-254 '63.  
(MIRA 17:8)

*LATYSHEV, A.*  
**LATYSHEV, A.**

Reliable support of trade-union organizations. Sov.profsoliuzy 3  
no.8:34-36 Ag'55. (MIRA 8:10)

1. Sekretar' Stavropol'skogo krayevogo komiteta profsoyuza rabochikh i shuzhashchikh sel'skogo khozyaystva i zagotovok  
(Stavropol'--Trade unions)

LATYSHEV, A.

Work experience of "Mosmoloko" enterprise. Sov. torg. no. 4:31-35  
Ap '58. (MIRA 11:4)

1. Direktor torga Mosmoloko.  
(Dairy products—Marketing)

LATYSHEV, A.

Improving the specialized milk trade. Sov. torg. no.7:14-17  
J1 '56. (MLRA 9:10)

1. Direktor torga "Mosmoloko."  
(Milk trade).

LATYSHEV, A.; LOVACHEV, L.

~~Useful~~ manual for a salesman("Milk, butter, and egg products and animal fats" by V.G.Krutov and others. Reviewed by A. Latyshev, L. Lovachev). Sov. torg. no. 7:50-51 J1 '58. (MIRA 11:7)

1. Direktor torga Mosmoloko(for Latyshev). 2. Starshiy prepodavatel' Moskovskogo instituta narodnogo khozyaystva im. G.V.Plekhanova(for Lovachev).

(Animal products--Marketing)

LATYSHEV, A. A.

"A Typical Diesel-Electric Power Station for MTS Workshops" (Tipovaya dizel'naya elektrostantsiya dlya masterskikh pri MTS), Sel'khozproyekt, Ministry of Agriculture USSR, 1949, 29 pp. of text and 4 pp of sketches.

LATYSHEV, A. A.

"An Aluminum Asphalt-Bitumen Paint" (Alyuminiyevaya Asfal'to-bitumnaya Kraska),  
A. A. Latyshev and A. D. Starkova, edited by B. R. Mirenskiy, Goskhimizdat,  
Moscow/Leningrad, 1949, 40 pages, 2 rubles.

Description of the paint Al- 277.

SO: Uspekhi Khimii, Vol 18, #6, 1949; Vol 19, #1, 1950 (W-10083)

IATYSHEV, A.F.

Scraper hoists with remote control. Gor. shur. 122 no.2:34-35  
F '48. (MIRA 8:9)  
(Mine hoisting) (Remote control)

LATYSHEV, A. F., Eng.

Mine Haulage

Present-day shunting devices at loading points. Ugol' 28, No. 4, 1953.

Monthly List of Russian Accessions, Library of Congress, June 1953. Unclassified.

DOBRICH, Adal'bert [Dobrič, Adalbert]; ALIKHODZHICH, Asim [translator];  
PISAREV, I.Yu., prof., red.; KABACHNIK, Ya.I., red.; LATYSHEV,  
A.I., red.; VINOGRADOVA, V.A., tekhn.red.

[Industrial statistics] Promyshlennaya statistika. Pod red.  
I.IU.Pisareva. Moskva, Gos.stat.izd-vo, 1959. 291 p.

(MIRA 13:3)

(Industrial statistics)

MIKHALI, Y [Mihalik, Jozef]; SONIN, M.Ya., doktor ekon. nauk,  
red.; ZAYTSEV, N.F., red.; LATYSHEV, A.I., red.

[Planning the reproduction of trained labor force;  
problems of theory and practice] Planirovanie vosproiz-  
vodstva kvalifikatsirovannoi rabochei sily; voprosy teorii  
i praktiki. Moskva, Progress, 1964. 358 p. Translated  
from the Slovak. (MIRA 17:8)

TROFIMOVA, V.I.; SHAPIRO, M.S.; SHORIN, G.P., redaktor; LOBANOV, D.I.,  
redaktor; MOLCHANOVA, O.P., redaktor; SUKOLENOV, P.G., redaktor;  
VERER, V.A., redaktor; LATYSHEV, A.N., redaktor; KAGANOVA, A.A.,  
vedushchiy redaktor; BERNIKOV, Yu.K., redaktor; SUDAK, D.M.,  
tekhnicheskii redaktor

[A collection of recipes for labor reserve student dining rooms]  
Sbornik retseptur blud dlia pitaniia uchashchikhsia uchebnykh  
zavedenii trudovykh rezervov. Moskva, Gos. izd-vo torgovoi lit-ry,  
1956. 358 p. (MIRA 10:1)

1. Russia (1923-  
(Cookery)

U.S.S.R.) Ministerstvo torgovli.

LATYSHEV, A.N.

Effect of some factors on the fine structure centers in the  
absorption spectra of thin metallic layers. Sbor.nauch.rab.  
asp. VGU no.2:23-28 '62.

(MIRA 18:11)

S/137/62/000/011/016/045  
A052/A101

AUTHOR: Latyshev, A. N.

TITLE: Effect of certain factors on fine structure centers in absorption spectra of thin metal layers

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 11, 1962, 15, abstract 111115 ("Sb. nauch. rabot aspirantov Voronezhsk. un-ta", no. 2, 1962, 23 - 28)

TEXT: The fine structure of absorption spectra of thin Ag layers ( $10^{-7}$  g/cm<sup>2</sup>) in the visible spectrum range (450 - 700 mμ) was studied. Ag layers were produced in a vacuum of  $10^{-4}$  mm mercury column. It is found that absorption spectra on mica do not differ noticeably from Ag absorption spectra on quartz. Layers produced by spraying Ag on an oxide layer have higher fine structure maxima. Mechanical processing of the backing does not affect absorption spectra. When the backing is heated the height of maxima increases. Atmospheric oxygen does not affect noticeably the fine structure centers.

[Abstracter's note: Complete translation]  
Card 1/1

N. Penkina

LATYSHEV, A.N.

Some problems concerning the formation of fine structure  
silver layers in the absorption spectrum. Zhur. nauch. i  
prikl. fot. i kin. 8 no.6:454-459 N-D '63.

1. Gosudarstvennyy universitet, Voronezh. (MIRA 17:1)

ACCESSION NO: AP4013972

S/077/64/009/001/0018/0021

AUTHOR: Laty\*shev, A. N.

TITLE: The effect of aging of silver layers on the fine structure of absorption spectrum

SOURCE: Zhurnal nauchnoy i prikladnoy fotografii i kinematografii, v. 9, no. 1, 1964, 18-21

TOPIC TAGS: silver halide, aging silver halide, absorption spectra, fine structure, maximums of fine structure, wave length, absorption curve, optical density, center fading

ABSTRACT: The effect of prolonged exposure to air of silver layers on the fine structure of their absorption spectra has been investigated. These effects are believed to be similar to those described by Ye. A. Kirillov and Ye. A. Nesterovskaya (Zh. nauchn. i prikl. fotogr. i kinematogr., 1958, 3, 4) on the destructive effect of monochromatic light on centers in silver halide layers (responsible for the spectral peaks). The methods of preparing the samples and the description of the registering apparatus are given in an earlier publication by the author (Zh. nauchn. i. prikl. fotogr. i kinematogr., 1963, 8, 454). The thickness

Card 1/A 2

ACCESSION NO: AP4013972

of the silver layers in the films varied between  $3 \times 10^{-8}$  and  $10^{-7}$  gm/cm<sup>2</sup>. Measurements of absorption spectra were made within the 400-670 millimicron range at various time intervals following exposure of the samples to air for periods up to 60 hours. As can be seen from the absorption spectra shown on Fig. 1 of the Enclosure, during the first hours of exposure to air all of the maximums of the fine structure above the 600 millimicron region began to disappear at once. This was extended within one day to the maximums of the 600-510 millimicron region, and within several more days the same phenomenon was observed in the region of a wave length less than 510 millimicrons. The period of complete disappearance of the maximums varied with various samples. The author assumes that the maximums of each group belong to the same type of centers, representing its spectrum. On exposure to air these centers disappear with various speeds. Orig. art. has: 2 charts.

ASSOCIATION: Voronezhskiy gosudarstvennyy universitet (Voronezh State University)

SUBMITTED: 22Sep62

DATE ACQ: 14Feb64

ENCL: 02

SUB CODE: PG

NO REF SOV: 003

OTHER: 000

Card 2/42

LATYSHEV, A.N.

Structure of the absorption spectra of the thin metallic layers of thallium. Zhur.nauch. i prikl.fot. i kin. 9 no.2:81-83 Mr-Ap '64. (MIRA 17:4)

1. Voronezhskiy gosudarstvennyy universitet.

LATYSHEV, A.N.

Photochemical destruction of the centers responsible for the thin structure of the admixed absorption spectrum of silver halide. Zhur. nauch. i prikl.fot. i kin. 9 no.4:263-266 JI-Ag '64.

(MIRA 17:10)

1. Voronezhskiy gosudarstvennyy universitet.

LATYSHEV, A.N.

Methodology for measuring the absorption spectra of the thin  
structure of some objects and the mechanism of thin structure  
formation. Zhur. nauch. i prikl. fot. i kin. 10 no.2:149-151  
Mr.-Ap '65. (MIRA 18:5)

NECHAYEVA, T.A.; LATYSHEV, A.N.; GONCHAROVA, I.F.

Spectra of light attenuation by small colloidal particles  
of silver and gold. Zhur. nauch. i prikl. fot. i kin. 9  
no.3:203-205 My-Je '64. (MIRA 18:11)

1. Nauchno-issledovatel'skiy institut fiziki Odesskogo gosudarstvennogo universiteta i Voronezhskiy gosudarstvennyy universitet. Submitted November 18, 1963.

S/151/60/000/006/001/001  
B012/B060

AUTHOR: Latyshev, D. G.

TITLE: Role of Disturbances in Northwestern Direction in the  
Distribution of Mineralization in the Khrustal'nyy Tin Ore  
Deposit

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Geologiya i razvedka,  
1960, No. 6, pp. 58 - 63

TEXT: On the basis of findings from 1959 (Ref. 2), the mineral veins of the Khrustal'nyy tin ore deposit, lying in highly dislocated sedimentary strata, have been ascribed to the Norian stage of the Upper Triassic. This deposit communicates with the west side of the anticlinal fold, whose axis has a submeridional course. Findings by V. N. Dubrovskiy (Ref. 1) are confirmed by the author's own data. It may be assumed on their basis that within the anticlinal fold there is a series of folds of higher orders, and that the principal veins of the deposit communicate with their axial region (Volkovskaya vein, Glavnaya vein, Tret'ya DTsMR

Card 1/3

Role of Disturbances in Northwestern Direction in the Distribution of Mineralization in the Khrustal'nyy Tin Ore Deposit S/151/60/000/006/001/001  
B012/B060

vein, Khloritovaya vein, et al.). The disturbances containing these veins are characterized by an almost meridional course ( $0 - 20^\circ$ ) and a drop toward north-west at an angle of  $60 - 75^\circ$ . Apart from the above-mentioned disturbances there are still such with a north-west course. According to V. N. Dubrovskiy and V. P. Polokhov (Ref. 2) these disturbances are cracks of a fracture communicating with the submeridional disturbances. In 1957, V. N. Dubrovskiy established in the Khrustal'nyy deposit four stages of mineralization with a regular decrease of tin in the direction of the stages coming next. A further northwestern fracture with a rich quartz-cassiterite vein, which later was named Diagonal'naya vein, was uncovered late in 1957. This called for a review of traditional notions on the genesis and the opportunity of an exploitation of the northwestern disturbances. The following results were established with a new exploration: 1) Together with a crumpling of rocks into the anticlinal folds, shear disturbances of the submeridional ( $0 - 20^\circ$ ) direction have appeared in the Khrustal'nyy deposit. These disturbances coincide with the spread

Card 2/3

Role of Disturbances in Northwestern Direction in the Distribution of Mineralization in the Khrustal'nyy Tin Ore Deposit

S/151/60/000/006/001/001  
B012/B060

of foldings and the discontinuous northwest disturbances (320 - 340°). They are related to the formation of the fold structure. 2) The northwestern disturbances were renewed during the post-mineralization period and acquired a "shear-like" character. Several submeridional veins were dislocated in the process. 3) The northwestern disturbances were filled up by submeridional disturbances. For this reason the latter exhibit no quartz-cassiterite mineralization at the northern flanks. The richest tin-containing ores are found in the northwest veins which cut the principal submeridional veins in their central parts. The poor ores are found in the northwestern veins which cut the submeridional veins at the flanks. There are 2 figures and 2 Soviet references.

ASSOCIATION: Vsesoyuznyy nauchno-issledovatel'skiy institut mineralnogo syr'ya  
(All-Union Scientific Research Institute of Mineral Raw Materials)

Card 3/3

LATYSHEV, D.G.

Role of the northwestern dislocations in the mineral distribution in the Khrustal'nyy tin deposit. Izv. vys. ucheb. zav.;  
geol. 1 razv. 3 no.6:58-63 Je '61. (MIRA 14:7)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut mineral'nogo  
syr'ya.

(Khrustal'nyy-- Tin ores)

KISLYANOV, Ya.M.; LATYSHEV, D.G.

Practice in using a camera for recording mining data. Geol.  
rud.mestorozh. 5 no.4:101-102 J1-Ag '63. (MIRA 16:9)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut mineral'nogo  
syr'ya.

(Photographic surveying) (Mining geology)

LATYSHEV, D.I.; GURLEV, A.S., agronom po zashchite rasteniy.

On the "Teplichnyi" State Farm. Zashch. rast. ot vred. i bol.  
3 no.1:38-40 Ja-F '58. (MIRA 11:3)

1. Glavnyy agronom sovkhosa "Teplichnyy" (for Latyshev).  
(Greenhouse management)

LATYSEV, F.<sup>A</sup>, assistant; BUNAKOV, A., assistant; MCHEDLOV-PETROSYAN, O.,  
prof.; DUDNIK, F., nauchnyy sotrudnik; GORDON, S., kand. tekhn.  
nauk.

Using substandard sand in making concretes. Stroi. mat. 2 no.10:  
25-28 0 '56. (MIRA 12:3)

1.Yuzhnyy nauchno-issledovatel'skiy institut, Dnepropetrovsk (for  
Dudnik).

(Sand) (Concrete)

MCHEDLOV-PETROSYAN, O. P.; LATYSHEV, F. A.; BUNAKOV, A. G.; LEVCHUK, N. A.

"The Thermodynamic Investigation of Cement Vibro-Activation."

report presented at the Section on Colloid Chemistry, VIII Mendeleyev Conference of General and Applied Chemistry, Moscow, 16-23 March 1959.

(Koll. Zhur. v. 21, No. 4, pp. 509-511)

MCHEDLOV-PETROSYAN, O.P.; LEVCHUK, N.A.; BUNAKOV, A.G.; LATYSHEV,  
F.A.; STRELKOVA, I.S.

Thermographical investigations of the effect of vibrating  
on cement mixes. Silikaty no.2:67-69 '59. (MIRA 13:6)  
(Cement) (Vibration)

MCHEDLOV-PETROSYAN, O.P.; BUNAKOV, A.G.; LATYSHEV, F.A.; CHESNOK-SMOTRICH, G.V.

Choosing automated manufacturing techniques for large structural  
articles. Stroi.mat. 7 no.8:16-18 Ag '61. (MIRA 14:8)  
(Precast concrete)

**LATYSHEV, F.F.,** mashinist-instruktor

Locomotive engineer-instructor F.F. Latyshev shares his experience. Elek. i tepl. tiaga 2 no.5:36-37 '58. (MIRA 12:4)

1. Depo Verkhniy Baskunchak, Privolzhskaya doroga.  
(Diesel locomotives--Electric equipment)

OSHEROVSKIY, Kh.M.; LATISHEV, G.D.

Solar therapy during the cold season on the southern shore of the  
Crimea. Vop. kur. fizioter. i lech. fiz. kul't. 25 no. 3:208-211  
My-Je '60. (MIRA 14:4)

1. Iz Yaltinskogo santoriya Ministerstva oborony SSSR (nach. Ye.I.  
Fedorov).

(CRIMEA—SUN BATHS)

LATYSHEV, G.D. (Yalta)

Calculation and measurement of the heat flow passing through the  
skin in sudden cooling. Vop. kur., fizioter. i lech. fiz. kul't.  
26 no.1:64-67 '61. (MIRA 14:5)  
(BODY TEMPERATURE REGULATION) (HYPOTHERMIA)

LATYSHEV, G.D.

Controlled cold bathing. Vop.kur., fizioter.i lech.fiz.kul't. 27  
no.2:117-123 Mr-Ap '62. (MIRA 15:11)

1. Iz Yaltinskogo sanatoriya Ministerstva oborony SSSR.  
(BATHS, COLD)

LATYSHEV, G.D.

Methodology of dosimetry and dosage in heliotherapy. Vop.kur.,  
fizioter.i lech.fiz.kul't. 28 no.1:79-80 '63. (MIRA 16:4)

1. Iz Yaltinskogo sanatoriya Ministerstva oborony SSSR.  
(SUN BATHS)

L 27204-66 EWT(1)/EWT(m)/ETC(m)-6 IJP(c) WW

ACC NR: AP6017444

SOURCE CODE: UR/0361/65/000/002/0035/0040

AUTHOR: Andreyev, Yu. A.; Beskrovnyy, I. M.; Latyshev, G. D.

ORG: none

TITLE: Methods for automation of physical measurements in magnetic beta-spectrometers

SOURCE: AN KazSSR. Izvestiya. Seriya fiziko-matematicheskikh nauk, no. 2, 1965, 35-40

TOPIC TAGS: spectrometer, automation, magnetic circuit, automation equipment, electronic rectifier

ABSTRACT: A brief review of the advantages of automation in spectrometers and inadequacies in currently proposed methods of implementing such automation make up a large portion of this article. A general diagram of an automated spectrometer is presented, along with some suggestions for the construction of various elements. The article concludes with the suggestion that an automated spectrometer have two basic components - a universal control block containing the timing, program, and recording blocks; and a block specially constructed for each type of spectrometer consisting of a regulator, a magnetic field stabilizer, and a high voltage rectifier or a high voltage bias rectifier. Undoubtedly, of greatest value is the bibliography of current works in this area.

Orig. art. has: 1 figure. [JPRS]

SUB CODE: 09, 13 / SUBM DATE: 09Oct64 / ORIG REF: 014 / OTH REF: 005

Card 1/1 CC

CA 3

COLLISIONS AND PROPERTIES INDEX

Collisions of the second kind between electrons and activated atoms of mercury.  
G. D. LATUMBEV AND A. I. LEIPUNSKII. *J. Russ. Phys.-Chem. Soc., Phys. Pt.* 62, 150-71(1930).—A method for measurement of electronic impacts of the second kind was devised. Collisions of the second kind were found in the collision between electrons and Hg atoms present in metastable condition  $^{21}Po$ . The abs. value for the max. probability of impacts of the second order was 0.7%.

V. VESSELOVSKY

ASB-5LA METALLURGICAL LITERATURE CLASSIFICATION

SOV/48-22-8-16/20

A New Method of Measuring the Spin-Spin Relaxation Time of Liquids

If  $T_2 < 0,01$  sec and if too small a volume  $V$  is required,  $T_2$  can be determined from the dependence of the amplitude of the nutation signal on the consumption of liquid (as in Ref 5). In this case only one of the oscillating fields is used. There are 5 references, 1 of which is Soviet.

ASSOCIATION: Leningradskiy institut inzhenerov zheleznodorozhnogo transporta im. V. N. Obratsova (Leningrad Institute of Railroad Transport Engineers imeni V. N. Obratsov)

Card 3/3

21 (7)

AUTHORS:

Sergeyev, A. G., Vorob'yev, V. D.,  
Remenny, A. S., Kol'chinskaya, T. I.,  
Latyshev, G. D., Yegorov, Yu. S.

SOV/56-35.2-6/60

TITLE:

The Influence Exercised by Finite Dimensions of  
Nuclei Upon the Relative Coefficients of Internal  
Conversion in L-Subshells (Vliyaniye konechnykh  
razmerov yadra na otnositel'nyye koeffitsiyenty  
vnutrenney konversii v L-podobolochkakh)

PERIODICAL:

Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1958,  
Vol 35, Nr 2, pp 348-354 (USSR)

ABSTRACT:

As the experimental and theoretical values of conversion  
coefficients agree only very badly (Refs 1 - 10), the  
authors undertook the task of finding out to what extent the  
finite dimensions of nuclei influence these values. The  
present paper contains a report on the experimental  
investigations concerning this influence which is exercised  
on the relative conversion coefficients in L-subshells  
for pure M1-transitions. The following transitions were  
investigated:

Card 1/3

The Influence Exercised by Finite Dimensions of  
Nuclei Upon the Relative Coefficients of Internal  
Conversion in L-Subshells

SOV/56-35-2-6/60

46,5 keV - decay:  $\text{RaD} \xrightarrow{\beta} \text{RaE} (\text{Bi}_{83}^{210})$

115,1 keV  $\text{ThB} \xrightarrow{\beta} \text{ThC} (\text{Bi}_{83}^{212})$

238,6 keV  $\text{ThB} \xrightarrow{\beta} \text{ThC} (\text{Bi}_{83}^{212})$

The following was found for the ratio  $L_I : L_{II} : L_{III}$

100 :  $(10,6 \pm 0,2)$  :  $(0,93 \pm 0,05)$

100 :  $(10,4 \pm 0,2)$  :  $(0,88 \pm 0,10)$

100 :  $(10,4 \pm 0,2)$  :  $(0,74 \pm 0,05)$

For the first and for the 3. transition results obtained by  
Bashilov, Dzhelepov, Chervinskaya, and those of references  
10, 11, 16, 17 have already been published; they are  
compared in this paper with the results obtained by the  
authors. Furthermore, the relative conversion coefficient  
for the 277,3 keV -  $\gamma$  -transition ( $M1$ ) between two excited

levels in  $\text{Pb}^{208}$  was investigated, viz. for the levels  
3474,8 keV ( $4^-$ ) and 3197,5 keV ( $5^-$ ). Here a E2-admixture

Card 2/3

The Influence Exercised by Finite Dimensions of  
Nuclei Upon the Relative Coefficients of Internal  
Conversion in L-Subshells

SOV/56-35-2-6/60

is possible. Result:

$$K:L_I = 6,15 \pm 0,3; \quad L_I:L_{II}:L_{III} = 100:(12,5 \pm 0,6):(1,9 \pm 0,3)$$

There are 4 figures, 3 tables, and 26 references, 11 of which  
are Soviet.

ASSOCIATION: Leningradskiy institut inzhenerov zheleznodorozhnogo  
transporta (Leningrad Railroad Engineers Institute)

SUBMITTED: March 6, 1958 (initially) and July 9, 1958 (after revision)

Card 3/3

S/194/62/000/005/058/157  
D256/D308

AUTHORS: Arkhangel'skiy, A.A., Vorob'yev, I.V., and Latyshev, G.D.

TITLE: Experience of industrial application of photoresistors for gamma-ray registration

PERIODICAL: Referativnyy zhurnal. Avtomatika i radioelektronika, no. 5, 1962, abstract 5-3-61 sh (Fotoelektr. i optich. yavleniya v poluprovodnikakh, Kiev, AN UkrSSR, 1959, 398-400)

TEXT: Preliminary experiments on gamma-ray detection by photoresistors are described, conducted in order to determine the possibilities of applications in defectoscopy, thickness control etc. Co<sup>60</sup> gamma-rays were directed upon a thallium activated sodium or cesium iodide crystal and the emitted light was focussed onto the photoresistor. The photocurrent was recorded using a single-valve amplifier. The dependence of the sensitivity of the method upon the thickness of the absorbing material was investigated. Best results were obtained using monocrystalline photoresistors type ФСК-М1 (FSK-MI)

Card 1/2

C

0000028810010-2

( 10.2000

66195

SOV/31-59-5-10/16

AUTHORS: Zhernovoy, A.I. and Latyshev, G.D.

TITLE: The Application of Nuclear Magnetic Resonance for the Determination of the Actual Liquid Jet Volume in the Part of a Piping System With Variable Section

PERIODICAL: Vestnik Akademii nauk Kazakhskoy SSR, 1959, Nr 5, pp 74 - 76 (USSR)

ABSTRACT: The article deals with the determination of the volume of a polarized liquid by means of nuclear magnetic resonance. If a liquid passes through a tube with a small section into another tube with a large section at great velocity, the jet volume only occupies a part of the volume of the wider tube. Let the length of the wider tube be  $l$ , and the section and average velocity of the jet at a distance  $x$  be congruent from its basis, the liquid is polarized and the magnetic moment of the volume unit at a distance  $x$  from the jet bases is  $M(x)$ . The specific magnetic moment in the liquid flowing out of

Card 1/4

66195

SOV/31-59-5-10/16

The Application of Nuclear Magnetic Resonance for the Determination of the Actual Liquid Jet Volume in the Part of a Piping System With Variable Section

the wider tube is  $M(e)$ . It results from nuclear magnetic relaxation that disregarding the variation of velocity at the jet section, the variation of the polarization of nuclei is

$$\frac{dM(x)}{dx} = - \frac{M(x)}{T_1 v(x)},$$

where  $T_1$  is the relaxation period of the liquid, whence it follows that

$$M(e) = M(0)e^{-\frac{L}{T_1} \int_0^e \frac{dx}{v(x)}}$$

✓

Card 2/4

66195

SOV/31-59-5-10/16

The Application of Nuclear Magnetic Resonance for the Determination of the Actual Liquid Jet Volume in the Part of a Piping System With Variable Section

where  $M(0)$  is the specific magnetic moment of the liquid flowing into the wider tube. Obviously,

$$v(x) \cdot S(x) = Q,$$

where  $Q$  is the discharge of liquid in the system. Hence it follows that

$$M(x) = M(0)e^{-\frac{L}{T_1 Q} \int_0^x S(x) dx} = M(0)e^{-\frac{V_c}{T_1 Q}}$$

where  $V_c$  is the volume of the liquid jet. The ratio

$\frac{M(x)}{M(0)}$  is equal to the ratio of amplitudes of the nuclear resonance signals  $\frac{A}{A_0}$  given by the liquid.

Card 3/4

66195

SOV/31-59-5-10/16

The Application of Nuclear Magnetic Resonance for the Determination of the Actual Liquid Jet Volume in the Part of a Piping System With Variable Section

entering the nuclear resonance transmitter. Thus,

$$v_i = Q T_i \cdot \ln \frac{A_0}{A}$$

The method is applied to guarantee an equal distribution of the liquid velocity in a section of any volume. The scheme of the apparatus is given in the diagram. There are 1 diagram and 12 references, 8 of which are Soviet and 4 unidentified. 4

Card 4/4

LATYSHEV, G. D.

A. G. Sergeyev, V. D. Vorobyev, A. S. Remenny, T. I. Kolchinskaya, G. D. Latyshev  
and Yu. S. Yegorov

"Influence of the Finite Dimensions of the Nucleus on the Relative Conversion  
Coefficients in the L-Subshells"  
Nuclear Physics, 9, No. 3, Jan. 1959, 498-508 (North Holland Publishing Co.,  
Amsterdam)

\*Paper read at the Eighth Annual Symposium on Nuclear Spectroscopy of the USSR  
Academy of Sciences, January 1958, Leningrad.

Abstract: Measurements have been made of the relative internal conversion  
coefficients in the L-subshells for three pure M1 transitions: 46.5 keV in  $\text{Bi}^{210}$ ,  
and 115.1 and 238.6 keV in  $\text{Bi}^{214}$ . It is shown that in order to obtain agreement  
with the experimental data, it is necessary to take into consideration the finite  
dimensions of the nucleus in the theoretical calculations of the L internal conversion  
coefficients.

Measurements have also been made of  $L_{\text{I}}$ ,  $L_{\text{II}}$ ,  $L_{\text{III}}$  for the 277.3 keV M1 transition  
in  $\text{Pb}^{208}$ .

V. H. Obratsov Institute of Railway Engineering, Department of Physics, Leningrad

21(3)

SOV/48-23-2-16/20

AUTHORS: Yegorov, Yu. S., Seliverstov, D. M., Latyshev, G. D.,  
Zhernovoy, A. I.

TITLE: Instrument for Measurement and Stabilization of the Magnetic  
Field in Spectrometers (Ustanovka dlya izmereniya i stabilizatsii  
magnitnogo polya v spektrometrakh)

PERIODICAL: Izvestiya Akademii nauk SSSR. Seriya fizicheskaya, 1959,  
Vol 23, Nr 2, pp 244-250 (USSR)

ABSTRACT: In this paper a universal measuring instrument and a stabilizer  
of the magnetic field for spectrometers is designed. The instrument  
is based on the principle of measurement and stabilization of the magnetic  
field by magnetic nuclear resonance. It permits the measurement of magnetic  
fields within the range 3 - 2500 Oe and stabilization within the range 10-2500 Oe.  
For good resolution of the lower limit the authors applied the method of  
previous magnetization of water. (Fig 2, block scheme of the instrument in  
figure 1), whereby the lower limit of the field strength to be measured  
can be reduced to 3 Oe. Due to the ratio of signal noise obtained by this  
method it is possible to use the signal of nuclear resonance for stabilization.

Card 1/2

SOV/48-23-2-16/20

Instrument for Measurement and Stabilization of the Magnetic Field in Spectrometers

ing the field of the spectrometer also at a field strength of 10 Oe. For the purpose of obtaining the signals of nuclear resonance the scheme of the Franklin generator was applied, as suggested by Pound (Ref 8). Reactive tubes of the type 6Zh5P were used for frequency stabilization, whereby a frequency stability of the generator of  $8 \cdot 10^{-6}$  was obtained within a wide range of frequency. There are 6 figures and 10 references, 7 of which are Soviet.

ASSOCIATION: Leningradskiy institut inzhenerov zheleznodorozhnogo transporta im. V. N. Obratsova  
(Leningrad Institute for Railroad Engineers imeni V. N. Obratsov)

Card 2/2

21(3)  
AUTHORS: Yegorov, Yu. S., Séliverstov, D. M., SOV/48-23-2-17/20  
Latyshev, G. D.  
TITLE: Frequency Meter for Nuclear Resonance (Izmeritel' chastoty  
dlya yadernogo rezonansa)  
PERIODICAL: Izvestiya Akademii nauk SSSR. Seriya fizicheskaya, 1959,  
Vol 23, Nr 2, pp 251-254 (USSR)  
ABSTRACT: For the use of nuclear resonance for the measurement and  
stabilization of magnetic fields the accuracy of measurement  
is of special importance. On the other hand, the accuracy of  
the measurement of magnetic fields is determined by the ac-  
curacy of the measurement of high-voltage frequencies. The  
frequencies are measured by comparison with quartz frequencies.  
A block scheme of the frequency meter MK-3 is given in figure 1,  
and the accurate scheme is contained in figure 2. A precise  
description of the apparatus is given. With subdivision of  
the quartz-generator frequency into 10 kc each the difference  
of the frequency to be measured between two neighboring  
harmonics of the multivibrator is found within the limits  
of 0 and 5 kc. The error caused in the measurements amounts  
to  $\pm(7-10)$  %. For the purpose of reducing the error an  
oscillograph is applied whereby the frequencies can be measured

Card 1/2

Frequency Meter for Nuclear Resonance

SOV/48-23-2-17/20

according to Lissajous figures. The error is then reduced to  
+ 2 cycles. In the case of frequency measurements above  
4950 cycles the multivibrator is divided into 20 kc each.  
There are 4 figures and 2 Soviet references.

ASSOCIATION: Leningradskiy institut inzhenerov zheleznodorozhnogo trans-  
porta im. V. N. Obratsova  
(Leningrad Institute for Railroad Engineers imeni V. N. Obratsov)

Card 2/2

LATYSHEV, G.D.

PHASE I BOOK EXPLOITATION

SOV/4725

Krisyuk, Eduard Mechislavovich, Aleksandr Sergeyevich Sergeyev, and Georgiy Dmitriyevich Latyshev

Aktivnyy osadok radiotoriya (Thorium Active Deposit) Alma-Ata, Izd-vo AN Kazakhskoy SSR, 1960. 2,450 copies printed.

Sponsoring Agency: Akademiya nauk Kazakhskoy SSR. Institut yadernoy fiziki.

Ed.: D. M. Glazyrina; Tech. Ed.: V. P. Prokhorov.

PURPOSE: This booklet is intended for nuclear physicists.

COVERAGE: The authors review the literature on radioactive radiations and decay for transition schemes of  $^{212}\text{Pb}$ ,  $^{212}\text{Bi}$ ,  $^{208}\text{Tl}$ , and  $^{212}\text{Po}$  isotopes in the "thorium active deposit" and present quantum characteristics and conclusions on the nature of levels. They recommend the use of alpha and conversion spectra for calibration and verification of the operation of spectroscopic equipment. Data on the half-lives of the isotopes, the conversion

~~Card 1/3~~

• Thorium Active Deposit

SOV/4725

spectrum of the thorium active deposit, etc., are presented in tabular form. No personalities are mentioned. There are 191 references: 111 English, 28 Soviet, 18 German, 8 Swedish, 13 French, 10 Italian, and 3 Polish.

TABLE OF CONTENTS:

Introduction	3
Ch. I. Study of the Thorium Active Deposit	
1. Half-lives and the coefficient of branching of $\text{Bi}^{212}$ decay	5
2. Alpha-spectrum	8
3. Beta-spectrum	12
4. Conversion spectrum	16
5. Gamma radiation	27
Ch. II. Decay Scheme of the Thorium Active Deposit	
1. Decay scheme of $\text{Pb}^{212}$	33
2. Decay scheme of $\text{Bi}^{212} \xrightarrow{\alpha} \text{Tl}^{208}$	42
3. Decay scheme of $\text{Tl}^{208}$	49
Card-2/3-	

S/263/62/000/002/004/009  
I004/I204

AUTHOR: Zhernovoy, A. I. and Latyshev, G. D.

TITLE: Magnetic rate-of-flow meter for liquids

PERIODICAL: Referativnyy zhurnal, otdel'nyy vypusk. Izmeritel'naya tekhnika, no. 2, 1962, 39-40, abstract 32.2.273. "Tr. Tashkentsk. konferentsii po mirn. ispol'zovaniyu atomn. energii. v. 2". Tashkent, AS UzSSR, 1960, 17-19

TEXT: A flow-meter was developed in the Institute of Nuclear Physics of the AS of KazSSR based on nuclear magnetic resonance (NMR). This device is intended for measuring the rate of flow of liquids containing hydrogen, fluorine, lithium and other substances with a high gyromagnetic ratio (water, alcohol, gasoline, petroleum and others). The device possesses the advantages of low inertia and absence of any elements within the pipe line. The flow meter is in the form of a branch-pipe made of nonmagnetic and non-conducting material. The branch pipe is located in a strong magnetic field. At the outlet of the branch pipe a coil is wound which is connected by means of a cable with the NMR detector circuit. The liquid which passes through the branch pipe after polarization is under action of a resonance H. F. field. An analytic expression of the dependence of the NMR signal upon the rate-of-flow of the liquid is given together with a formula for the determination of the theoretical upper measurement limit at which the characteristic is still linear.

✓

Card 1/2

Magnetic rate-of-flow...

S/263/62/000/002/004/009  
1004/1204

A graph of an experimentally obtained dependence of the amplitude of the NMR signal upon the rate of flow of water in a 15 cm<sup>3</sup> branch tube is given; this dependence being linear for the rate-of-flow range between 0 and 70 cm<sup>3</sup>/sec. The measurement range in these experiments was 20 to 1. The sensitivity of the device may be increased at the price of reduced measurement range by moving away the NMR transducer from the magnetizing field and placing it between poles of an additional magnet. The device has the capacity to record jumps in the rate of flow of 0.1 sec. duration. There are 3 figures and 10 references.

[Abstracter's note: Complete translation.]

Card 2/2

ZHERNOVOY, A.I.; LATYSHEV, G.D.

Use of nuclear resonance for measurements in science and technology.  
Vest.AN Kazakh.SSR 16 no.5;33-41 My '60. (MIRA 13:7)  
(Nuclear magnetic resonance)

OSTRETISOV, L.A.; KOVRIGIN, O.D.; LATYSHEV, G.D.; LEONOV, V.D., V.D.; SHIRSHOV,  
H.M.

Measuring the lifetime of the 279 Kev level of  $Tl^{203}$  by the delayed  
coincidence method. Vest. AN Kazakh. SSR 16 no.9:72-78 S '60.

(MIRA 13:9)

(Thallium--Isotopes)

(Scintillation counters)

22852  
S/031/61/000/001/002/003  
A161/A129

9.2590

AUTHORS: Ostretsov, L.A., Kovrigin, O.D., Latyshev, G.D., Academician  
of the Academy of Sciences KazSSR; Leonov, V.D., Shirshov, N.M.

TITLE: Practical measurements of delay line parameters

PERIODICAL: Vestnik Akademii nauk Kazakhskoy SSR, no. 1, 1961, 29-33

TEXT: Delay lines are coming into extensive use in modern radio engineering. The authors used an alternating delay line for operation in a quick-slow coincidence circuit that was employed for measurement of time intervals in the range of  $10^{-7}$  to  $10^{-10}$  sec. A brief description of the design and methods of measuring the wave resistance, delay and attenuation in the line is presented in this article. The design is illustrated (Fig. 1). Its main element is a hollow mobile brass drum with a surface in the form of a square-section spiral of the type suggested by Bell (Ref.1). The square is 18 x 18 mm. A copper conductor 4 mm in diameter is laid along this spiral axis on rings from fluoroplastic. This conductor is the inner conductor of a high-frequency cable. The spiral diameter is 220 mm, the turns number 22. The drum rotates on plain journal bearings on posts.  
Card 1/11

22852

S/031/61/000/001/002/003  
A161/A129

Practical measurements of ...

Minimum and constant contact resistance of the mobile part with the stationary part is important. In this case it was 0.05 ohm. The transition from the mobile part to the immobile part is also a coaxial line with the same wave resistance. A slip collector takes the signal from the open cylinder surface. The collector is a cathode follower circuit with a diode. The drum may be rotated by hand or by motor (a drive pulley is provided). The wave resistance was determined in two ways (Fig. 2). Voltage from the output of a 102-M (102-I) sweep generator is transmitted to the delay line, the other end of which is loaded with alternating resistance (R). A reverse reflected wave which can occur in the case of load mismatch is transmitted to the generator input. As seen in the diagram, the direct wave from the output arrives simultaneously. The carrier frequency is to be selected on the most even portion of the frequency characteristic of the generator. A maximum approach of the frequency characteristic watched on the screen to the natural frequency of the generator is to be achieved gradually by changing the resistance. The absence of reflections from the line end shows that the line is loaded with wave resistance that can be determined by measuring the resistance R. In our case it was  $95 \pm 10$  ohms. Wave resistance

Card 2/11

22852

Practical measurements of ...

S/031/61/000/001/002/003  
A161/A129

can be measured in the same way with the use of an ИПХ-1 (IPKh-1) transition characteristic meter. The front of the  $\Pi$ - pulse will be seen on the screen. It grows in  $(1.5 \pm 0.2) \cdot 10^{-8}$  sec (Fig. 3, a). This oscillogram appears at full match of the load and wave resistance. In the case of disconnected line, the oscillogram will be as in Fig. 3. b, and in the case of short-circuit as in Fig. 3c. The second method is more accurate, the measured resistance was  $100 \pm 5$  ohms. The double delay time may be determined by oscillograms (Fig. 3) using the time division marks on the IPKh-1. In Fig. 3 it is indicated by  $2\tau$ , and it is in our case  $(10 \pm 2) \cdot 10^{-8}$  sec. More accurate measurement is possible with the circuit in Fig. 4. A signal from a ГСС-1 (GSS-1) sinusoidal oscillator is modulated in amplitude with 400 cycles frequency and fed to the line. The line is connected to a high-ohmic measurement circuit and works nearly as in the case of a line opened at the end. An ЭО-7 (EO-7) oscillograph is used as an indicator. The work frequencies are reaching far beyond the pass band of the EO-7 and a crystal diode amplitude detector must be used, then the sinusoidal oscillations of 400 cycles frequency will be seen on the EO-7 screen. Measurements consist in the smooth variation of the generator carrier frequency. When the generator frequency is such that an uneven number of

Card 3/11

22852

Practical measurements of ...

S/031/61/000/001/002/003  
A161/A129

wave quarters can be placed on the line length, the voltage on the line end will bulge. Obviously, there will be a maximum sinusoid amplitude on the screen. This case is described by the formula

$$\ell = \frac{2n-1}{4} \lambda \text{ or, } v = \frac{4\ell}{2n-1} f,$$

where  $v$  is the wave propagation velocity in the line;  $\ell$  - the line length;  $\lambda$  - the generator wave length;  $f$  - generator frequency. Substituting  $n = 3$ ; 23.1 megacycle frequency, and 14.2 m line length:

$$v = 2.63 \cdot 10^{-10} \text{ m/sec.}$$

Knowing the line length and the signal propagation velocity the delay time is found:

$$T_{\text{del}} = \frac{\ell}{v} = (5.40 \pm 0.15) \cdot 10^{-8} \text{ sec.}$$

Measurement can also be carried out when the line is short-circuited at the end. The oscillograph must then be connected through the detector to the line input. Attenuation was determined by the following procedure:

Card 4/11

22852

S/031/61/000/001/002/003  
A161/A129

Practical measurements of ...

The Q-factor of the circuit with the line is measured by a Q-meter at parallel and series resonance. The calculation formula is (Ref. 2)

$$\alpha l = \sqrt{\left(\frac{1}{Q_1} - \frac{1}{Q_0}\right) \left(\frac{1}{Q_2} - \frac{1}{Q_0}\right)}$$

where  $\alpha$  is the attenuation factor;  $Q_1$  - the circuit quality at parallel resonance,  $Q_2$  - at series resonance,  $Q_0$  - of circuit proper,  $l$  - line length. The measured attenuation was  $\alpha \pm 0.004$  decibel. A different method can also be used. First, the resonance frequency in the line is calculated using the formula (Ref. 3)

$$f_{(\text{megacycle})} = \frac{144 \beta}{l}$$

where  $\beta = \frac{v}{c}$  - relative signal velocity in the line;  $l$  - line length in ft. Then the Q-factor and capacitance are determined with the Q-meter. The  $\frac{M}{2\pi}$  value is determined by the formula

$$\frac{M}{2\pi} = 10^{-6} f_{(\text{megacycle})} C \text{ (pf)} \rho \text{ (ohm)}$$

Card 5/11

22852

S/031/61/000/001/002/003  
A161/A129

Practical measurements of ...

The S value is found from the graph in Ref. 3 and the line attenuation will be found by the formula

$$N = \frac{S}{Q\ell} \text{ decibel/100 ft.}$$

In our case it was  $0.037 \pm 0.004$  decibel. The design of the delay line proved convenient in use, and the accuracy of measurements proved sufficient, for the error in the determination of the excitation life time was not exceeded. There are 4 figures and 3 references (2 in English language and 1 a translation into Russian). The references are reading: (Ref. 1) Bell, Graham, Petch. Canadian J. of Physics, 1952, 30, 35; (Ref. 2) Termen and Pettit (Russian spelling); "Measurement in electronics". Izdatel'stvo inostrannoy literatury, Moscow, 1955; (Ref. 3) Stewart, C.Z., Trans. AIEE, 1945, 64, 616, 938. X

Card 6/11

33109

S/638/61/001/000/035/056  
B108/B138

24,2300(1144,1158,1160)

AUTHORS: Zhernovoy, A. I., Latyshev, G. D.

TITLE: Use of nuclear resonance for measurement and stabilization of non-uniform weak magnetic fields

SOURCE: Tashkentskaya konferentsiya po mirnomy ispol'zovaniyu atomnoy energii. Tashkent, 1959. Trudy. v. 1. Tashkent, 1961, 236 - 240

TEXT: The nuclear magnetic resonance amplitude in a uniform magnetic field is proportional to the volume of the pickup and to the square of the magnetic field strength. In a non-uniform field, the effective volume of the resonance pickup is that fraction of the true geometric volume in which the non-uniformity is less than the amplitude of the h.f.-field. The pickup must be small, otherwise only very slight non-uniformity will be permissible ( $\text{grad } H_{\max} < \frac{H_1}{d}$ ,  $d$  - pickup length). The overall error is also proportional to  $d$ . In previous work (PTE, 1958, 5, 73) the authors devised a pickup to satisfy these requirements. The dependence

Card 1/3

Use of nuclear resonance for...

33109  
S/638/61/001/000/035/056  
B108/B138

of the signal amplitude on the parameters of the pickup was determined by solving Bloch's equation for exact resonance. The results were checked by measurements with pickups of various sizes. They showed that the theoretical formula for the maximum signal amplitude for  $\gamma H_1 T_x > 1$ ,

$$A_e = B \cdot q \left[ 1 - e^{-\frac{V_g}{qT_x}} \left[ \cos \frac{V_g}{qT_x} \sqrt{1 - \gamma^2 H_1^2 T_x^2} + \frac{\text{Sh} \frac{V_g}{qT_x} \sqrt{\gamma^2 H_1^2 T_x^2 - 1}}{\sqrt{\gamma^2 H_1^2 T_x^2 - 1}} \right] \right] \quad (3)$$

$$\frac{1}{T_x} = \left| \frac{1}{T_1} - \frac{1}{T_2} \right|, \quad \frac{1}{T} = \frac{1}{T_1} + \frac{1}{T_2}.$$

is a satisfactory rendition of the experimental facts. B is a coefficient which in first approximation is independent of the pickup parameters,  $\gamma$ -nuclear g-factor;  $T_1$  and  $T_2$ , respectively, are the longitudinal and  
Card 2/3

Use of nuclear resonance for...

33109  
S/638/61/001/000/035/056  
B108/B138

transverse relaxation times,  $V_g$  - working volume of pickup. The theoretical considerations show that the maximum amplitude of the nuclear resonance amplitude in a pickup with a flowing polarized medium should not decrease with the volume of the pickup. Therefore the amplitude of the oscillating field must be increased when volume of the pickup is reduced. A signal-to-noise ratio of more than 10 had to be achieved with a pickup of only  $0.03 \text{ cm}^3$ . In practice, pickups with a flowing medium can be used up to field strengths of 500 - 1000 oersteds. There are 2 figures, 1 table, and 4 references: 2 Soviet and 2 non-Soviet. The reference to the English-language publication reads as follows: Brown R. M. Phys. Rev., 78, 530, 1950. 4

ASSOCIATION: Institut yadernoy fiziki AN KazSSR (Institute of Nuclear Physics AS Kazakhskaya SSR)

Card 3/3

33110

S/538/61/001/000/036/056  
B108/B138

24.2300(1144, 1158, 1160)

AUTHORS: Zhernovoy, A. I., Latyshev, G. D.

TITLE: Nutation method of measuring direct current by nuclear magnetic resonance

SOURCE: Tashkentskaya konferentsiya po mirnomy ispol'zovaniyu atomnoy energii. Tashkent, 1959. Trudy. v. 1. Tashkent, 1961, 240 - 242

TEXT: A new method of measuring magnetic fields by nuclear magnetic resonance has been developed, using a single-channel converter. It is free from the common errors since it provides for direct measurement of the dependence of field on current, and exact measurement of parasitic magnetic fields, which figure can then be subtracted from the total field. With this method, which uses only one pickup currents can be measured 1000 times weaker than was hitherto possible. They do not have to be modulated. Passing through the measuring channel of the converter is a thin tube through which flows the water polarized by a strong magnetic field (10,000 oe). The nutation pickup is at one end. Farther on, the water

Card 1/2

Nutation method of measuring...

33110

S/638/61/001/000/036/056  
B108/B138

passes into the nuclear resonance pickup (single frequency) which is in a permanent uniform magnetic field of 20 - 30 oe. When the r.f. magnetic field generated in the nutation pickup coil equals the proton precession frequency, polarization of the flowing water will vanish or change its sign, and so will the nuclear resonance signal in the detector. The current in the converter is determined by  $I = K(f - f_0)$ ,  $I = Kf \cdot f_0$  is the nutation frequency at which the resonance signal vanishes when no current flows through the converter,  $f$  the signal when a current flows. The converter constant  $K$  usually causes the principal error in the measurements. This can be reduced by exact current measurement at a current of about 10 a. The result of this measurement can be used to determine the  $K$  value which may then be employed in the entire range of measurements. Details about the optimum parameters of the arrangement can be found in earlier papers by the authors (Inzh. fiz. zhurnal, 1958, 9, 123). There are 1 figure and 6 references: 5 Soviet and 1 non-Soviet.

ASSOCIATION: Institut yadernoy fiziki AN KazSSR (Institute of Nuclear Physics AS Kazakhskaya SSR)

Card 2/2

33111

S/638/61/001/000/037/056  
B108/B138

9.2574 (1055, 1158, 1163)

AUTHORS: Zhernovoy, A. I., Latyshev, G. D.

TITLE: Dependence of the frequency of a nuclear resonance maser on the parameters of the arrangement

SOURCE: : Tashkentskaya konferentsiya po mirnomy ispol'zovaniyu atomnoy energii. Tashkent, 1959. Trudy. v. 1. Tashkent, 1961, 242-248

TEXT: The authors calculated the effect of the parameters of an r.f. oscillatory circuit and of non-uniformities of the magnetic field on oscillations under radiative relaxation. The latter is due to magnetic interaction between polarized nuclei and the resonance circuit oscillating at a frequency which is near the Larmor precession of the nuclei. The radiative relaxation signal can be used in measuring and stabilizing a magnetic field. K. V. Vladimirovskiy (ZhETF, 33, 532, 1957) established the condition  $-2\pi M_0 \gamma / \eta Q > 1/T_2$  for radiative relaxation for the longitudinal

component of magnetization.  $M_0$  is the longitudinal component of the overall nuclear magnetic moment of the specimen,  $\eta$  the space factor of the

Card 1/3

33111

S/638/61/001/000/037/056

B108/B138

Dependence of the frequency ...

pickup coil,  $Q$  - quality factor,  $\gamma$  - nuclear g-factor,  $T_2$  - transverse relaxation time. The oscillation frequency in this kind of circuit is

$$\omega = \frac{\omega_0}{\sqrt{1 - 2\pi|\gamma| M_0 T_2^2 \frac{\Delta\omega_n}{1 + \Delta\omega_n T_2^2}}}, \quad (12)$$

where  $\Delta\omega_n$  is the difference between frequency of the oscillating field and  $\omega_n$  the resonance frequency of the nuclei,  $\omega_0$  is the resonance frequency of the circuit. Where  $\Delta\omega_r \ll \omega_0$  the shift from resonance frequency  $\omega_0$ , of the circuit oscillations,

$$\Delta\omega_r = - \frac{\omega_0 T_2^2}{2Q} \Delta\omega_n.$$

The magnetic field strength in the pickup of a Larmor frequency circuit is

$H = \frac{\omega}{\gamma} \cdot T_2$  depends on field non-uniformity  $\delta H$  as  $T_2^* \approx \frac{2}{\gamma \delta H}$ . Experimental

checking yielded good agreement between theory and experiment. The calculations can be used to estimate the systematic error in measuring a magnetic field through the oscillation frequency of a maser. The error

Card 2/3

33111

S/638/61/001/000/037/056

B108/B138

Dependence of the frequency ...

decreases with  $Q$  of the circuit, and with increasing  $T_2^*$  and  $|M_0|$ . The volume of the pickup must therefore be increased when the degree of polarization of the nuclei is increased. There are 9 references: 4 Soviet and 5 non-Soviet. The reference to the English-language publication reads as follows: Blombergen N., Pound R. V. Phys. Rev., 95, 8, 1954.

ASSOCIATION: Institut yadernoy fiziki AN KazSSR (Institute of Nuclear Physics AS Kazakhskaya SSR)

+

Card 3/3

22369

S/031/61/000/003/001/001  
A161/A133

24.7900

AUTHORS: Shernovcy, A. I.; Arkhangel'skiy, A. A.; Latyshev, G. D., Member of  
the Academy of Sciences KazSSR

TITLE: The practice of using nuclear resonance in magnetic flaw detection

PERIODICAL: Akademiya nauk Kazakhskoy SSR. Vestnik, no. 3, 1961, 105 - 107

TEXT: Brief information is given on preliminary experiments with a new magnetic flaw detection method developed at the authors' laboratory. The method's principle is measurement by nutation. It is said to be the only method rendering possible the measurement of weak and nonuniform magnetic fields, which cannot be done by two other existing methods - "nuclear induction" (G. Bloch, W. W. Hansen, M. E. Packard, 1946) and "adsorption method" (E. M. Purkell, N. C. Gorrey, R. U. Round, 1946). There are several different types of magnetic probes used for magnetic flaw detection. The sensitive element in the described method is a nuclear magnetic resonance pickup. The experiment unit is illustrated in a block diagram. Water from the mains is driven through a container placed in a strong magnetic field produced by a magnet and flows through a pipe. The coil of the nuclear resonance pickup is set on the pipe end and connected to a detector. It is desir-

Card 1/3

22369

The practice of using nuclear resonance ....

S/031/61/000/003/001/001  
A161/A133

able that the magnetic field surrounding the coil be 30 oe with not more than 0.5 oe/cm nonuniformity. A miniature radio-frequency coil can be placed at any spot on the pipe. The force lines of the coil must penetrate the entire cross section area of the pipe. The water volume under the simultaneous effect of a radio-frequency field produced by the coil presents the effective volume in which the mean field intensity is measured, i.e., it is the work volume of the magnetic probe. This volume can practically be reduced to only 0.01 cm<sup>3</sup>. The radio-frequency field in the coil is produced by a generator. The water passing the container obtains a polarization vector that depends on the time during which the water was in the magnetizing field ( $\tau$ ) and the field intensity ( $H_{\text{подм}}$ ).

$$M = \chi_0 H_{\text{подм}} \left(1 - e^{-\frac{\tau}{T_1}}\right),$$

where  $\chi_0 = 3 \cdot 10^{-10}$ ;  $T_1$  - longitudinal relaxation time (for nonpurified water  $T_1 \approx 2.3$  sec). The polarized water flows over a pickup; and the nuclear resonance signal produced in it has an amplitude proportional to  $M$ . If the intensity of any nonuniform field is required the field pickup is placed into it. When the frequency of the field of the coil (i.e., the frequency from the generator) becomes equal to the frequency of nuclear precession in the mean field of the nutation

Card 2/3

22369

S/031/61/000/003/001/001  
A161/A133

The practice of using nuclear resonance ...

pickup, the polarization vector of water flowing through this volume will change. It can disappear, or change the pole. The nuclear resonance signal in the circuit will correspondingly disappear or change the pole. The intensity of field being measured can be determined by reading the generator frequency ( $\omega$ ) on the scale:

$H = \frac{\omega}{\gamma}$ , where  $\gamma = 4250 \cdot 2\pi \frac{1}{\text{oe} - \text{sec}}$ . In the test unit the measurement accuracy was determined by the frequency measurement accuracy and amounted to 0.004 oersted. The major advantage of the method is that the sensitive element always shows the mean field intensity, regardless of how it is directed. The small size of the sensitive element and absolute measurement units are the other advantage. Measurements are possible at a very small distance from the workpiece surface (below 1 mm), which is impossible with the existing permalloy pickups even of best designs. In experiments the probe was clamped in a special holder and moved along the surface of the test specimens. The probe displacement is shown in millimeters on the horizontal axis in three included graphs, and the field intensity in oersted on the vertical. Data are presented obtained on a specimen with one simulated crack under a 3-mm thick steel plate and from a specimen with two simulated cracks at close distance. The specimens were ground steel bars and plates connected in the circuit of a small electromagnet. The field intensity at 5 mm from the specimen was about 1 oe. Cracks were imitated by putting the plates together. There are 4 figures.

Card 3/3

21393

S/120/61/000/002/003/042  
E032/E114

24.68/0

AUTHORS: Kovrigin, O.D., Kolesnikov, N.V., and Latyshev, G.D.

TITLE: A large beta-spectrometer with double focussing

PERIODICAL: Pribery i tekhnika eksperimenta, 1961, <sup>19</sup>No.2, pp. 19-25

TEXT: (First read at the 10th Annual Conference on Nuclear Spectroscopy, Moscow, January 19-27 1960). A description is given of a double-focussing spectrometer having an equilibrium orbit radius of 500 mm. The momentum resolution varies between 0.5 and 0.08% when the relative solid angle is varied between 0.65 and 0.15%. The design of the magnet is illustrated in Fig.1. The magnet is made of "steel-10". In Fig.1, 1 is the electro-magnet, 2 is the vacuum chamber, 3 is the receiving slit, 4 is the diffusion-pump inlet, 5 is a stilbene crystal, 6 is a light pipe, 7 is a photomultiplier, 8 is a magnetic field meter, 9 is a lead screen, 10 is the source, 11 is a vacuum gauge, 12 is a slit and 13 are auxiliary coils. The diameter of the pole pieces is 1300 mm and the gap at  $r = 650$  mm is 246.3 mm. The profile of the pole pieces and the corresponding radial magnetic field distribution are shown in Fig.2. The Pavinskiy Card 1/6

21393

S/120/61/000/002/003/042

E032/E114

A large beta-spectrometer with double focussing

field (P.P. Pavinskiy, Izv.AN SSSR, seriya fiz., 1954, 18, No.2, 175; Ref.2) is reproduced to an accuracy of  $5 \times 10^{-4}$  (curve 2). The final pole profile is given by Table 1. The source and the detector slit can be replaced without releasing the vacuum. The magnetic field can be varied between 10 and 200 oe which corresponds to the focussing of electrons with energies between 20 kv and 2.5 Mev. The magnetic field is stabilized to within  $\pm 10^{-4}$ . Fig.6 shows the conversion spectrum of  $Ba^{137}$  obtained with the spectrometer: a - solid angle 0.36%; b - solid angle 0.51% (K line). The main experimental results obtained with this spectrometer are compared with those obtained by other workers in Table 2.

There are 6 figures, 2 tables and 17 references: 9 Soviet and 8 non-Soviet. Acknowledgements are expressed to L.N. Fedulov, A.V. Zolotavin and Ye.P. Grigor'yev for collaboration and technical assistance.

ASSOCIATION: Institut yadernoy fiziki, AN KazSSR (Institute of Nuclear Physics, AS Kaz.SSR)

Card 2/6

KOVRIGIN, Orest Dmitriyevich; LATYSHEV, Georgiy Dmitriyevich;  
SEMENOV, M.N., red.; ROROKINA, Z.P., tekhn. red.

[Double-focusing spectrometer]Spektrometr s dvoynoi fokusi-  
rovkoi. Alma-Ata, Izd-vo Akad. nauk Kazakhskoi SFR, 1962. 45 p.  
(MIRA 16:2)

(Spectrometer)

KOVRIGIN, O.D.; LATYSHEV, G.D.

Use of a type FEU-12 photoelectric multiplier in a scintillation spectrometer and for the purposes of gamma-radioscopy. Trudy Inst. iad. fiz. AN Kazakh. SSR 5:102-106 '62. (MIRA 15:4)  
(Photoelectric multipliers) (Scintillation spectrometry)  
(Gamma-ray spectrometry)

S/707/62/005/000/008/014  
D290/D308

AUTHORS: Kovrigin, O.D., Kolesnikov, N.V. and Latyshev, G.D.  
TITLE: The preservation of the topography of the magnetic field in a  $\beta$ -spectrometer  
SOURCE: Akademiya nauk Kazakhskoy SSR.. Institut yadernoy fiziki. Trudy, v. 5. Alma-Ata, 1962. Fizika chastits vysokikh energiy. Struktura yadra, 107-110

TEXT: The authors give a method of preserving the theoretically required topography of the magnetic field in a double-focusing  $\beta$ -spectrometer while  $H_0$  (the magnetic field in the equilibrium orbit) changes from 10 to 200 oersted (equivalent to  $\beta$ -particle energies of 20-2, 500 kev). The quantity  $D = 1 - H_e(300)/H_t(300)$  was measured over the working range of  $H_0$  ( $H_t(300)$  and  $H_e(300)$  are respectively the theoretical and experimental magnetic fields at a radius of 300 mm; (the equilibrium orbit has a radius of 500 mm), and was found to be about  $2 \times 10^{-2}$ ; such values of D would cause considerable instrumental broadening of the lines in  $\beta$ -ray spectra. D

Card 1/2

The preservation of the topography ... S/707/62/005/000/008/014  
D290/D308

was reduced to  $\pm 3 \times 10^{-4}$  by placing additional coils at the internal surfaces of the magnet shoes; the current needed to keep D at this value was measured over the working range of  $H_0$ . Hysteresis in the material of the magnet may require the current in the additional coils to be altered slightly. The instrument was used to measure the natural line-widths in the conversion spectra of Th-B and  $^{137}\text{Ba}$ . There are 6 figures. ✓

Card 2/2

9.2574

39308  
S/707/62/005/000/009/014  
D290/D308

AUTHORS:

Zhernovoy, A.I. and Latyshev, G.D.

TITLE:

The relation between the frequency of a nuclear resonance maser and the parameters of the apparatus

SOURCE:

Akademiya nauk Kazakhskoy SSR. Institut yadernoy fiziki. Trudy, v. 5. Alma-Ata, 1962. Fizika chastits vysokikh energiy. Struktura yadra, 112-116

TEXT:

The authors studied a system consisting of a tuned circuit linked with a coil containing a specimen that is in a magnetic field of H oersted; they found a relation between  $\omega_0$  the resonant frequency of the circuit,  $\omega_n$  the resonant frequency of the nuclei in the specimen in a magnetic field of H oersted, and  $\omega$  the frequency of the signal induced in the tuned circuit by the relaxation of the nuclei of the specimen. The authors assumed that the effect of the polarized nuclei on the circuit was equivalent to a complex magnetic susceptibility; they related this susceptibility to the properties of the nuclei and the impedance of the circuit.

Card 1/2

The relation between the frequency ...

S/707/62/005/000/009/014  
D290/D308

and obtained this final equation:

$$\Delta\omega_n = \frac{\delta H}{H} \times Q \times \Delta\omega$$

in which  $\Delta\omega_n = \omega - \omega_n$ ,  $\delta H$  is the inhomogeneity of the magnetic field over the specimen,  $Q$  is the Q-factor of the circuit, and  $\Delta\omega = \omega_n - \omega_0$ . Experimental measurements agree with the equations within limits of error of 20%. Since many assumptions were used in deriving the equations, it is better to use the equations as a means of selecting optimum parameters for the measuring apparatus rather than to calculate detailed corrections. The errors decrease as  $Q$  decreases, and as the longitudinal component of the magnetic moment of the nuclei and the relaxation time increase; therefore the volume of the specimen should be decreased so that the polarization of the nuclei increases.

Card 2/2

ARKHANGEL'SKIY, A.A.; ~~LATYSHEV, G.D.~~

Using a scintillation gamma-ray flow detector. Trudy Inst. iad.  
fiz. AN Kazakh. SSR 5:117-127 '62. (MIRA 15:4)  
(Gamma-ray spectrometry)

S/048/62/026/008/011/028  
B104/B102

AUTHORS: Kovrigin, O. D., Andreyev, Yu. A., Kartashov, V. M., Laty-  
shev, G. D., Sychikov, G. I., and Troitskaya, A. G.

TITLE: Multiplicities of the  $\text{Er}^{167}$  nuclear  $\beta$ -transitions with  
energies of 208 and 532 keV

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Seriya fizicheskaya, v. 26,  
no. 8, 1962, 1028 - 1030

TEXT: A Ta target was irradiated with 680-Mev protons and the Tu fraction separated chromatographically. A  $\beta$ -spectrometer with double focusing was used to study the  $\text{Tu}^{167}$  conversion electron spectrum of the Tu fraction. The lines  $L_{II}$  and  $L_{III}$  (Fig. 1) were separated by the spectrometer, the line  $L_I$  was separated graphically. The ratios of the internal conversion coefficients were determined for  $Z = 68$  and  $E = 208.3$  keV (Table). The 208-keV transition is assumed to be of the isomeric type. The  $L_{II}$  and  $L_{III}$  lines of the 532-keV transition are very weak. Type E1 or E2 is ascribed to the 532-keV transition. There are 2 figures and 1 table.  
Card 1/2

24.6600

40104

S/048/62/026/008/020/028  
B104/B102

AUTHORS: Val'ter, A. K., Gonchar, V. Yu., Zalyubovskiy, I. I.,  
Latyshev, G. D., and Chursin, G. P.

TITLE: Study of the (np) and (n,np) reactions on heavy nickel  
isotopes

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Seriya fizicheskaya,  
v. 26, no. 8, 1962, 1079-1084

TEXT: The object of this study was to find possibilities for further investigations of spectra and angular distributions of the products of (np) and (n,np) reactions on nickel, and to check the rules governing the reaction cross sections as found by V. N. Levkovskiy (ZhETF, 31, 360, 1956; 33, 1520, 1957). A tritium target (T being adsorbed to zirconium) was bombarded by 100-kev deuterons and sufficiently fast neutrons were produced in the  $T(d,n)He^3$  reaction. A recoil proton telescope was used as neutron monitor and the  $\beta$ -activity induced was measured with a scintillation counter. The half-lives were determined by a multi-channel analyzer. The reaction cross sections obtained (Table) agree with pub-

Card 1/2

S/048/62/026/C08/022/028  
B104/B102

AUTHORS: Firsov, Ye. P., Pivovarov, S. P., and Latyshev, G. D.

TITLE: Gradient meter based on a supergenerator controlled by nuclear precession

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Seriya fizicheskaya, v. 26, no. 8, 1962, 1088-1090

TEXT: An apparatus for determining deviations of magnetic field strengths within the range  $10^{-3}$  -  $10^{-6}$  from the theoretical value is described. The apparatus (Fig. 1) works with a supergenerator (Fig. 2). The circuit of one supergenerator is attached to the magnetic surface, that of the other one is moved from point to point in the field. The difference of the supergenerator frequencies characterizes the homogeneity of the field, and is determined from the Lissajous figures on the oscilloscope. The distance between the pickups is  $\sim 10$  mm, the maximum inhomogeneity is  $\leq 5 \cdot 10^{-3}$ . There are 3 figures. ✓

ASSOCIATION: Institut yadernoy fiziki Akademii nauk KazSSR (Institute of Nuclear Physics of the Academy of Sciences KazSSR)

Card 1/2

KOVRIGIN, O.D.; KARTASHOV, V.M.; LATYSHEV, G.D.; LONDARENKO, G.A.;  
NOVGORODOV, A.F.; SYCHIKOV, G.I.; SHAPOVALENKO, V.V.

Study of the internal conversion electron spectrum of  $\text{Eu}^{147}$ .  
Izv. AN SSSR. Ser. fiz., 27 no. 2: 263-266 F '63. (MIRA 16:2)  
(Internal conversion (Nuclear physics))  
(Europium isotopes--Spectra)

PIVOVAROV, S.P.; FIRSOV, Ye.P.; YASNILO, O.N.; LATYSHEV, G.D.

Comparison of circuits for paramagnetic resonance detection.

Trudy Inst. iad. fiz. AN Kazakh. SSR 6:119-123 '63.

(MIRA 16:10)

LATYSHEV, G.D., akademik; ZHERNOVOY, A. I., kand. fiziko-matemat. nauk

Nonresonance methods for the demagnetization and magnetic reversal  
of nuclei in a flowing liquid. Vest. AN Kazakh. SSR. 19 no.8:  
32-35 Ag '63. (MIRA 17:7)

L 19576-63 EPF(c)/EWP(j)/EWT(1)/EWT(m)/BDS/EEC(b)-2 AFFTC/ASD/  
IJP(C) Pc-4/Pr-4/P1-4 GG/RM/WW/MAY/JFW  
ACCESSION NR: AT3007856 S/2707/63/006/000/0124/0128

AUTHOR: Firsov, Ye. P.; Pivovarov, S. P.; Laty\*shev, G. D. ~~X~~ B

TITLE: Simple magnetometer<sup>2</sup> based on the principle of electron paramagnetic resonance<sup>2</sup>

SOURCE: AN KazSSR. Institut yadernoy fiziki. Trudy, v. 6, 1963.  
Issledovaniya po fizike vysokikh energii i elementarnykh chastits,  
124-128

TOPIC TAGS: electron paramagnetic resonance magnetometer, magnetometer, diphenylpicrylhydrazyl, sodium ammonia solution, electron paramagnetic resonance, electron paramagnetic resonance signal, magnetic field measurement, electron paramagnetic resonance crystal, free radical paramagnetic resonance, free radical crystal, precision field meter, magnetic field meter

ABSTRACT: An instrument based on the EPR of free radicals for making precise measurements of magnetic fields of 70-800 oer with an accuracy of 0.1% is described in detail, and its performance

Card 1/2

L 19576-63

ACCESSION NR: AT3007856

is investigated analytically. The device comprises a magnetic resonance pickup, a high-frequency generator, a modulator, a magnet, and an indicator. Diphenylpicrylhydrazyl crystals (line width of 2.7 oe) or a solution of sodium in ammonia (line width of 0.05 oe) are used as working substances. Analytical evaluations indicate that the output signal does not depend significantly on frequency within a wide frequency band. This makes the device particularly simple to operate. Orig. art. has: 4 figures, 10 formulas, and 1 table.

ASSOCIATION: none

SUBMITTED: 00

DATE ACQ: 08Aug63

ENCL: 00

SUB CODE: PH

NO REF SOV: 002

OTHER: 000

Card 2/2